May 1st, 8:30 AM - 10:00 AM

A Thousand Cuts – Protecting the streams that sustain Puget Sound

Jamie Glasgow
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Wild Fish Conservancy

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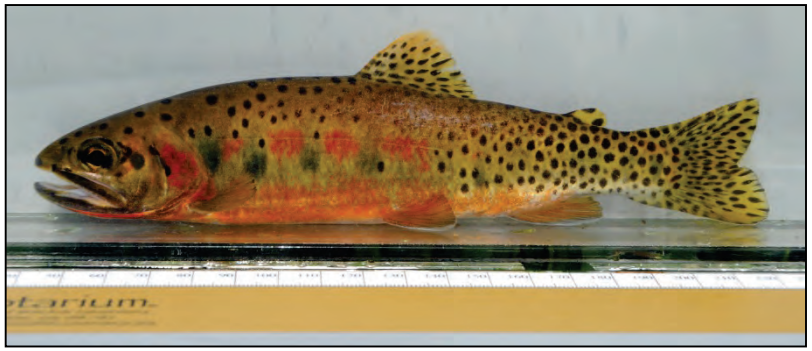

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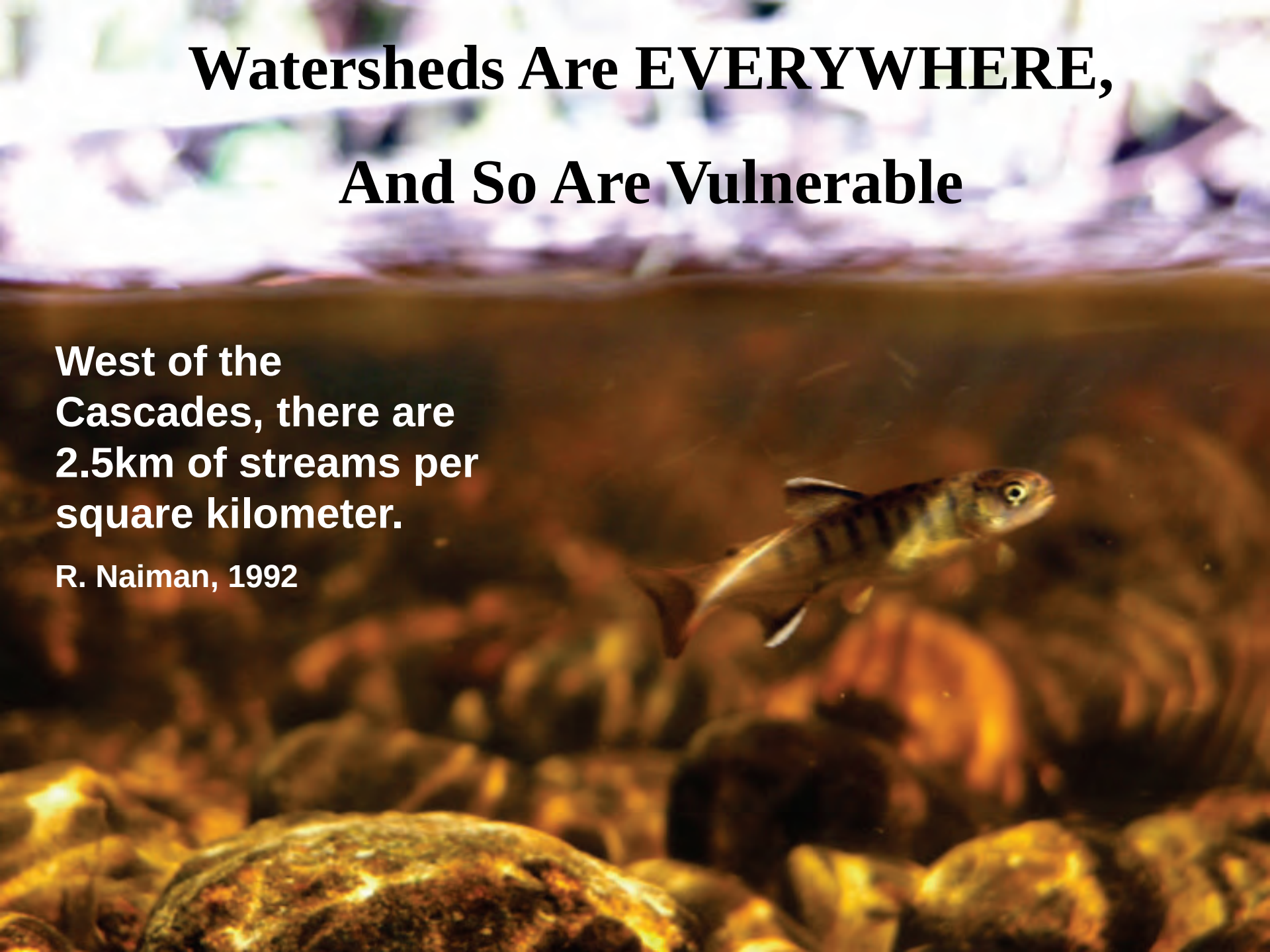
Protecting the Streams that Sustain Puget Sound

Jamie Glasgow

Director of Science and Research

Watersheds Are EVERYWHERE,

And So Are Vulnerable

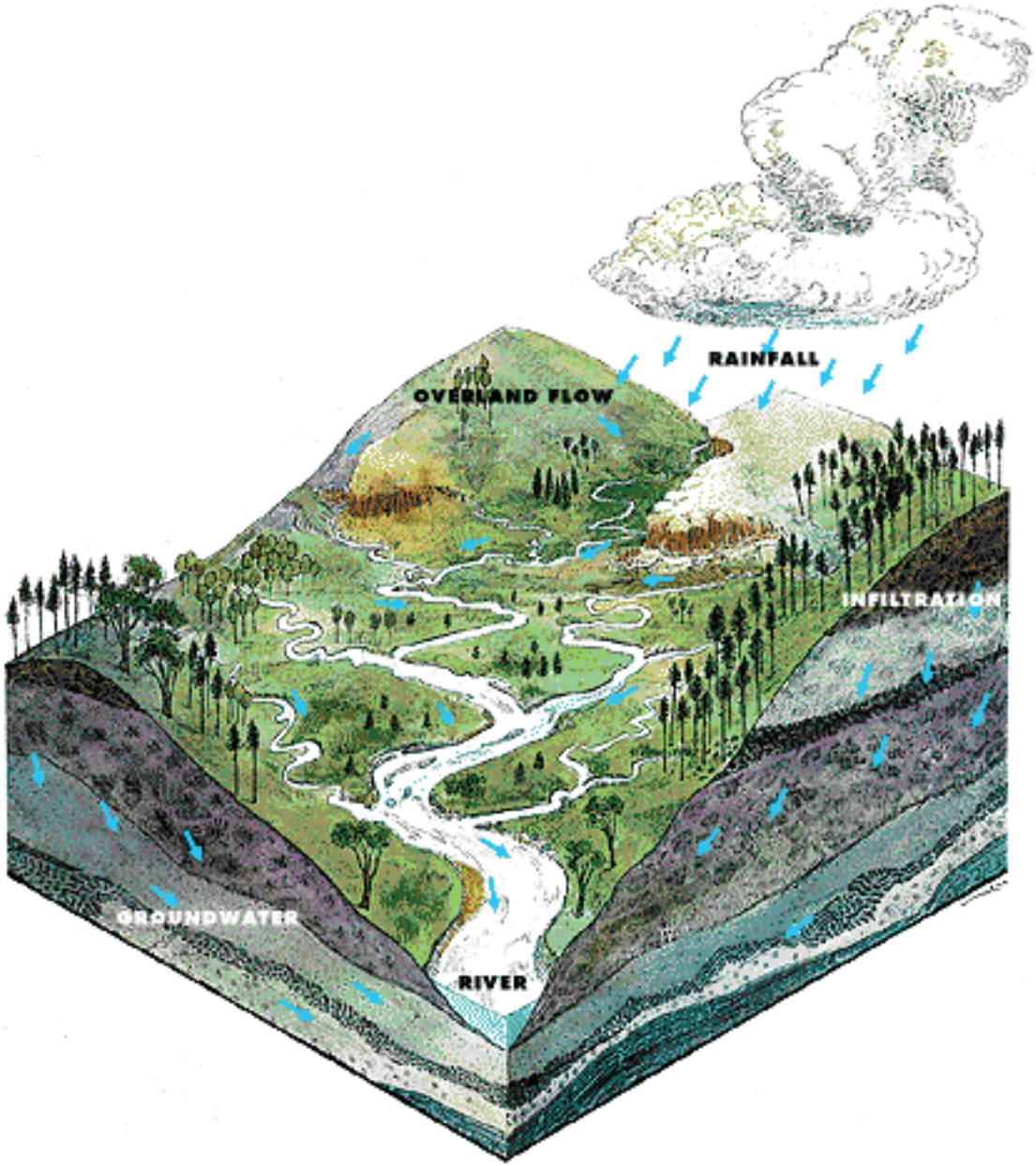


West of the Cascades, there are 2.5km of streams per square kilometer.

R. Naiman, 1992

Are you sitting down?

Protecting small streams is essential to protecting the ecological integrity of watersheds and the marine environments they feed.



The Good News:

Growth Management Act

Critical Areas Ordinances

Forest and Fish Law

(and others)

WATERTYPING

A stream classification system used to regulate land-use around streams.

WHERE ARE THE FISH AND THEIR HABITATS?

WATERTYPING

Originally developed by WDNR to protect streams on state forest lands.

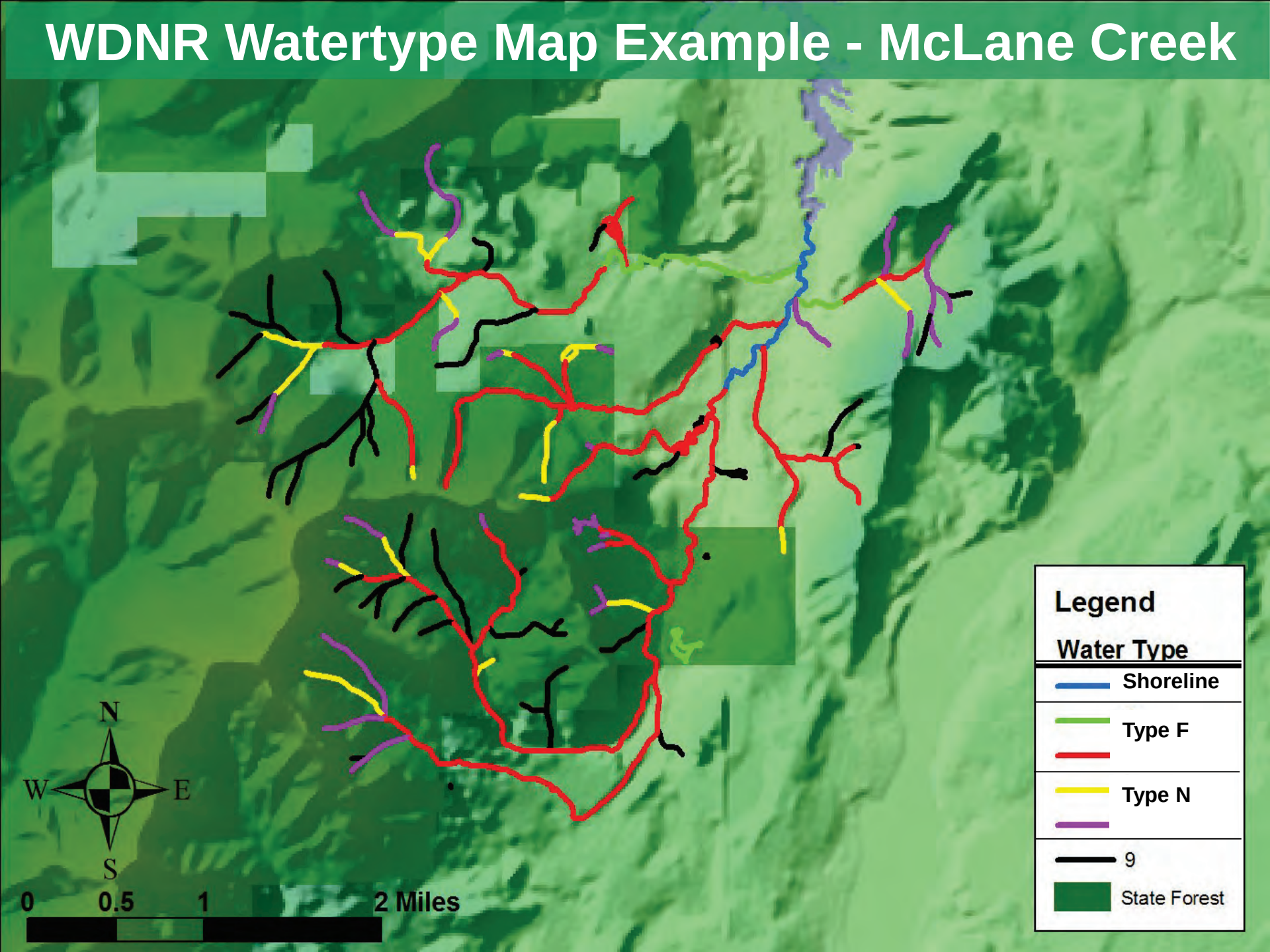
Subsequently adopted by most local governments in Washington to protect critical areas from adjacent land-use.

WATERTYPING

WA Department of Natural Resources Water Types

WAC 222-16-031	Type	Buffer Size
Type S	Shorelines	Large
Type F	Fish Bearing	Medium
Type N (p,s)	Non Fish-Bearing	Small or none
Type U	Unclassified	TBD

WDNR Watertype Map Example - McLane Creek



Kitsap County CAO

19.300.310 Fish and wildlife habitat conservation area categories.

…

1. Streams. All streams which meet the criteria for Type S, F, Np or Ns waters as set forth in WAC 222-16-030 of the Washington Department of Natural Resources (DNR) Water Typing System, as now or hereafter amended, Table 19.300.310 (*See also* Chapter 19.800, Appendix “B”).

Table 19.300.310
DNR Water Typing System

TABLE 19.300.315
FISH AND WILDLIFE HABITAT CONSERVATION AREA DEVELOPMENT STANDARDS

Streams			
Water Type	**Buffer Width**	**Minimum Building Setback**	**Other Development Standards**
S Segments of Big Beef Creek, Curley Creek, Chico Creek, Burley Creek, Union River, Blackjack Creek and Tahuya River	200 feet	15 feet beyond buffer	Where applicable, refer to the development standards in Chapters 19.200 (Wetlands) and 19.400 (Geologically Hazardous Areas). Where such features occur on site, the more restrictive buffer or building setback shall apply.
F	150 feet	15 feet beyond buffer	
Np	50 feet	15 feet beyond buffer	
Ns	50 feet	15 feet beyond buffer	
Saltwater Shorelines and Lakes			
Shoreline Designation[1]	**Buffer Width**	**Minimum Building Setback**	**Other Development Standards**
Urban	50 feet	15 feet beyond buffer	Where applicable, refer to the development standards in Chapters 19.200 (Wetlands) and 19.400 (Geologically Hazardous Areas). Where such features occur on site, the more restrictive buffer or building setback shall apply.
Semi-Rural and Rural shorelines and	100 feet	15 feet	

The Bad News:


Snoqualmie Watershed,
King County
March 9, 2007

Regulatory maps that guide stream protection ordinances are INACCURATE

- The maps frequently underestimate the distribution of fish and fish habitats.
- Many streams are incorrectly mapped or are not on the maps at all.

Misidentified fish habitats are not receiving the protection they warrant under existing laws

HOW INACCURATE?

Wait for the next presentation

When land-use occurs too close to streams

Altered hydrographs - stormflows increase in magnitude and frequency, and summer baseflows reduce or disappear altogether.

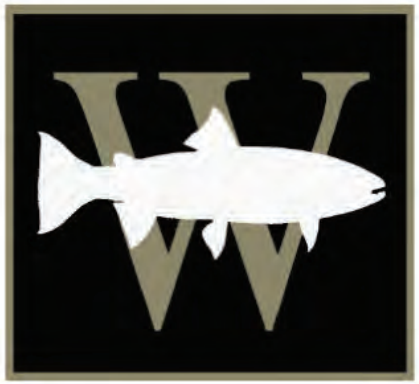
Increased erosion - aggravated by loss of riparian vegetation and an altered hydrograph, channels downcut and mobilize large amounts of fine sediments.

Increased water temperatures – loss of riparian habitat increases summer water temps.

Reduced water quality - pavement accumulates and delivers pollutants through stormwater infrastructure. Septic drainfields built too close to streams cause ecological and human health concerns.

When land-use occurs too close to streams

Ultimately, streams deliver sediment- and contaminant-laden stormwater to our nearshore habitats during the fall and winter, and warmer (and less) water during the summer.



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Working with federal, state, and local agencies and tribes to accurately map and type streams so they are more likely to be protected.

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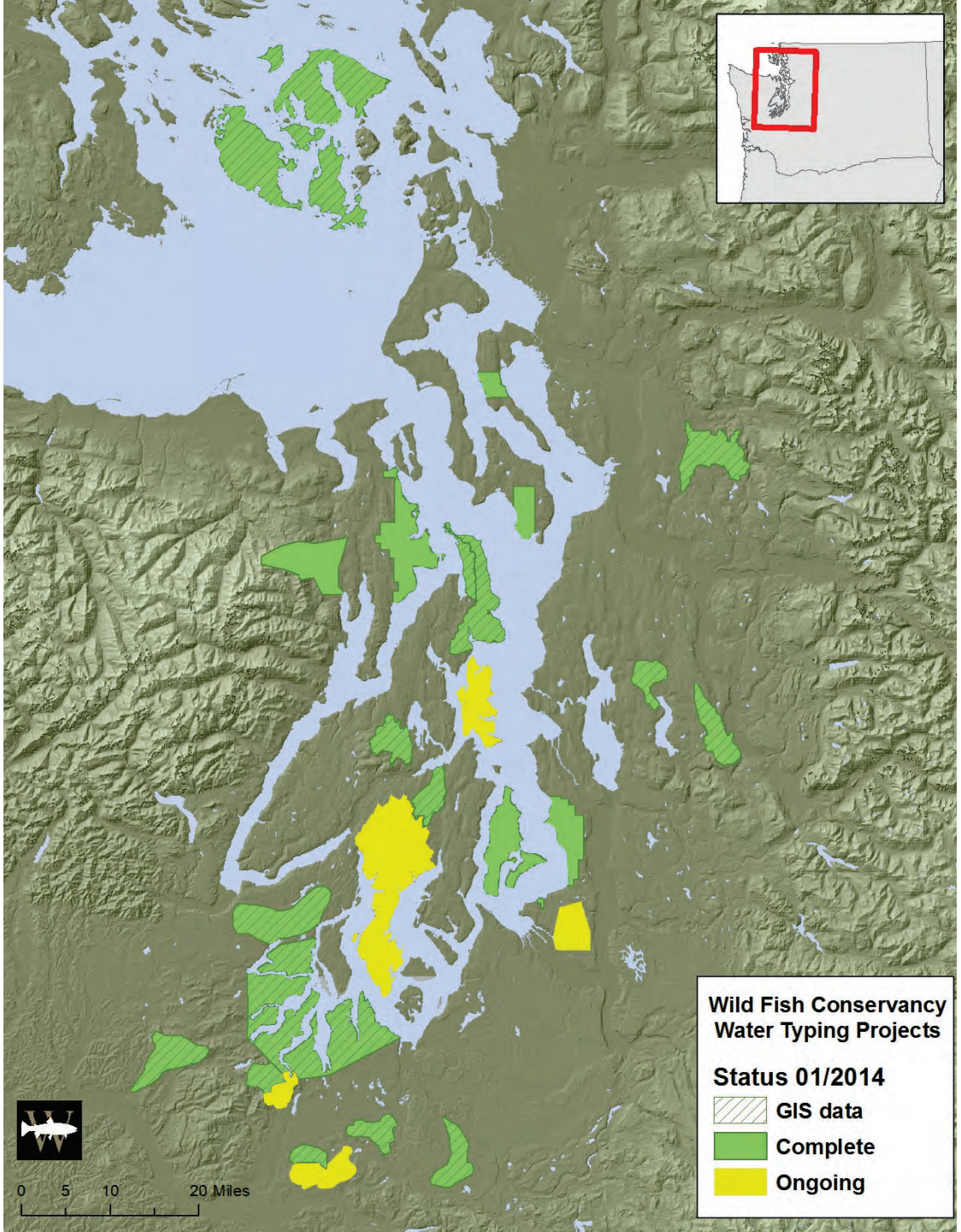
Systematic Water Type Assessments

WRIAs 02, 07, 09, 13, 14, 15, 17, 22-23, 28.



Project Field Elements

Correct water type classification per WAC 222-16-031 and Section 13 of the FPBM.

- Characterize channel and riparian condition, water temperatures, and instream features that may affect fish distribution. Document with photos and GPS.
- When fish are brought to hand, collect species, length, and condition data. Document with photos and GPS.
- Using GPS, correctly map the course of incorrectly mapped and unmapped stream channels.


10 20 30 40 50 60 70 80 90
photarium
a product of Wild Fish Conservancy
for information: 425-788-1167
photarium@wildfishconservancy.org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photarium

Project Products

GIS for:

- Fish Species Composition and Distribution
- Ground-truthed watertype
- Habitat and instream feature characterization
- Stream channel locations (GPS)

Interactive web-based interface

Deliver all data to WDFW, WDNR, affected counties, cities, and Tribes

Public Presentation of Results

Wild Fish Conservancy
NORTHWEST

The interactive map to the right allows you to view detailed stream survey and watertype data.

To zoom: double-click the map, or hold SHIFT while drawing a zoom box, or use the navigation tools at the top left of the map.

To pan: use the arrows at the top left, or click-hold-drag the mouse.

Additional data layers are available by clicking the '+' symbol at the top right of the map.

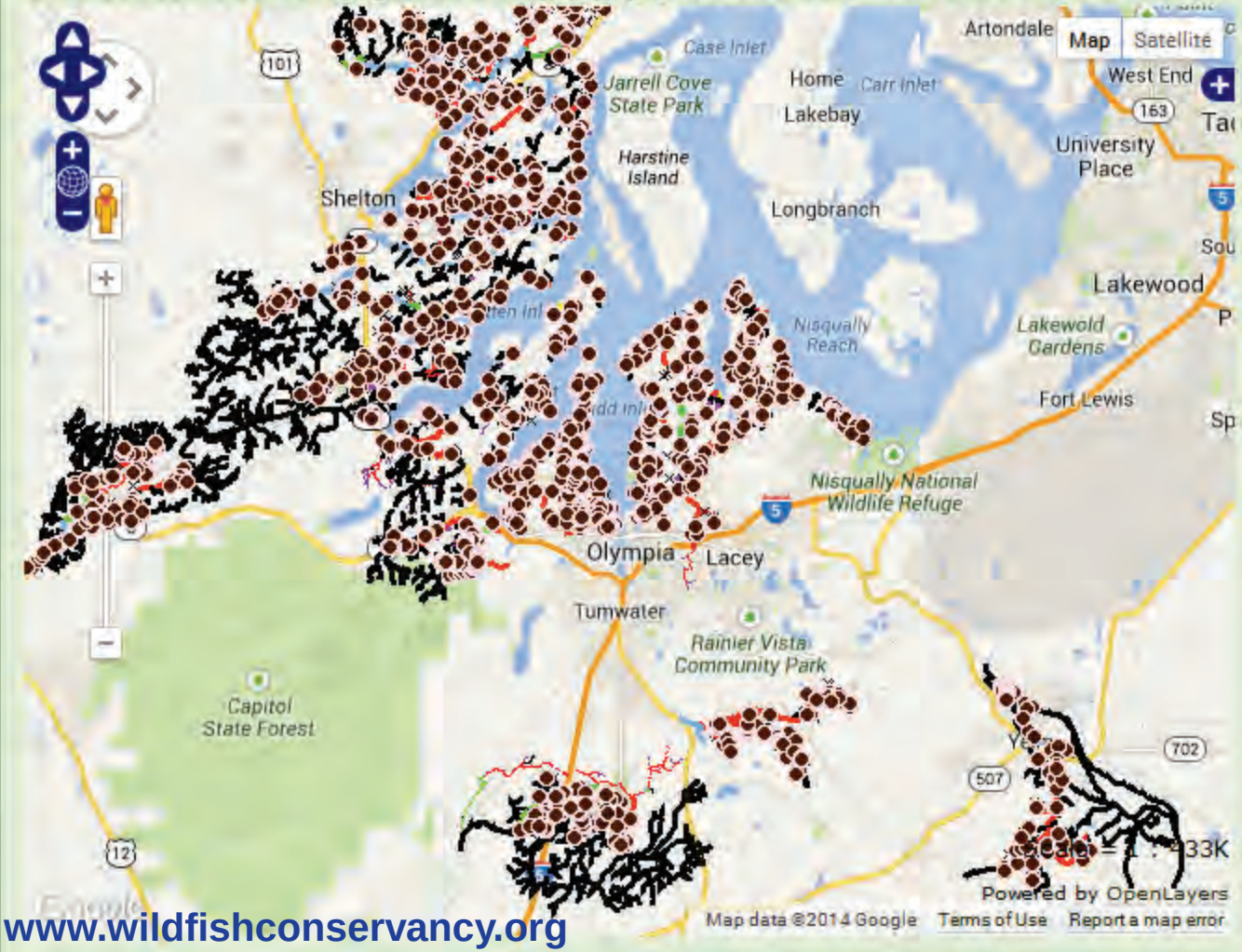
When you first click on the map, this help screen will disappear, and the results of the closest survey collection point to your click will be displayed. You may then

Enter an Address
Find Location

View Legend

Interactive Map by
Umbrella Consulting

Western Washington Water Type Assessments: 2005-2012



Project Results

- Improved regulatory protection of stream habitats
- Strengthening of salmon recovery Strategies and Plans
- Identification and prioritization of restoration and protection opportunities

Many of the Stream / Wetland data typically used to identify and protect fish habitats are inaccurate.

DNR Watertype (FPARS)
WDFW Salmonscape
WDFW PHS
Dept. of Ecology Hydro
Local gov't GIS

No Net Loss?
Responsible Forest Practices?
Responsible Development?
Responsible Growth Planning?
Responsible Agriculture?
Responsible Restoration Planning?
Recovery of T&E Species?

The rules are in place but their effectiveness is compromised because the maps that drive their implementation are inaccurate…

The silver lining…

By improving regulatory maps, we can make existing conservation rules more effective and facilitate responsible planning (growth, salmon recovery, etc.).

Funding and Support:

SRFB
PSAR
NEP
Kitsap County
Thurston County
Suquamish Tribe
King Conservation District

For More Information:

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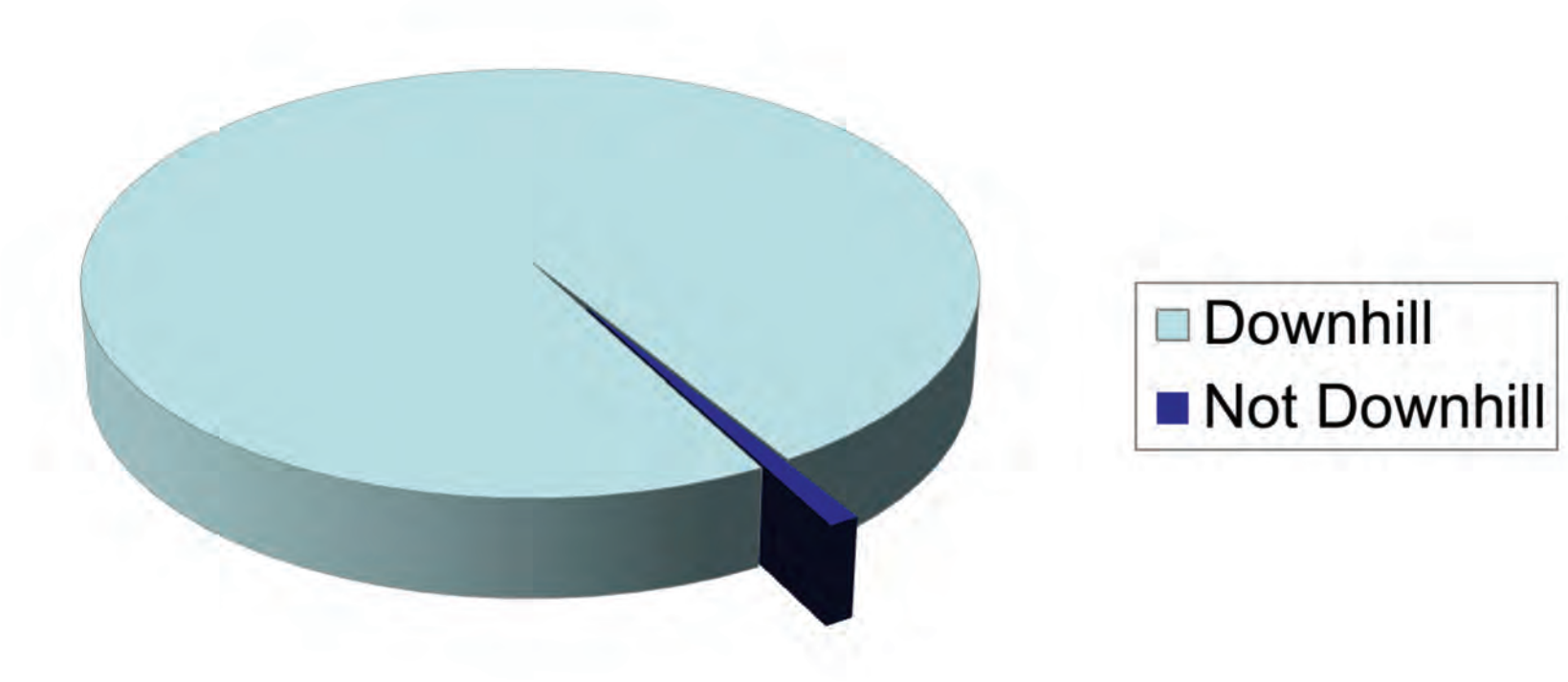
Directional Tendencies of H_2O



(N=56,748)

(Newton, 1687)